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B. FIELDS SEARCHED

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

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Cataganio	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	
Category °	Citation of document, with monators, where appropriate, or the relevant passages	rigidvant to claim No.	
P,X	DATABASE GENBANK [Online] 24 February 2003 (2003-02-24) Database accession no. CAD 67813 XP002276684 100% identity in 773 aa overlap with SEQ ID NO 2. abstract -& WO 02/099091 A (NOVOZYMES A/S) 12 December 2002 (2002-12-12) claims 20,21,27; examples 7,8,12,13 -/	1-27	

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International Application No PCT/DK 03/00844

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Category *	ation) DOCUMENTS CONSIDERED TO BE RELEVANT Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	DATABASE GENBANK [Online] 18 December 2003 (2003-12-18) Database accession no. CAF 02232 XP002276685 98% identity in 772 aa overlap with SEQ ID NO 2. abstract -& EP 1 350 843 A (KAO CORP.) 8 October 2003 (2003-10-08) abstract, paragraph 61	1-27
X	DATABASE GENBANK [Online] 19 December 2000 (2000-12-19) Database accession no. BAB 19360 XP002276686 98% identity in 772 aa overlap with SEQ ID NO 2. abstract -& HAKAMADA Y ET AL: "Deduced amino acid sequence and possible catalytic residues of a thermostable, alkaline cellulase from an alkaliphilic bacillus strain." BIOSCIENCE BIOTECHNOLOGY BIOCHEMISTRY, vol. 64, no. 11, November 2000 (2000-11), pages 2281-2289, XP002225730 JAPAN SOC. FOR BIOSCIENCE, BIOTECHNOLOGY AND AGROCHEM. TOKYO, JP. ISSN: 0916-8451 page 2281	1-27
X	DATABASE GENBANK [Online] 14 September 2001 (2001-09-14) Database accession no. AAA 73189 XP002276687 93% identity in 772 aa overlap with SEQ ID NO 2. abstract -& SUMITOMO N ET AL: "Nucleotide sequence of the gene for an alkaline endoglucanase from an alkalophilic bacillus and its expression in Escherichia coli and Bacillus subtilis." BIOSCIENCE BIOTECHNOLOGY BIOCHEMISTRY, vol. 56, no. 6, June 1992 (1992-06), pages 872-877, XP002225731 JAPAN SOC. FOR BIOSCIENCE, BIOTECHNOLOGY AND AGROCHEM. TOKYO, JP. ISSN: 0916-8451 page 872	1-27
X	EP 0 921 188 A (CLARIANT FINANCE BVI LTD) 9 June 1999 (1999-06-09) paragraphs [0018],[0074]	2-27



INTERNATIONAL SEARCH REPORT

International Application No PCT/DK 03/00844

	··	PCT/DK 03/00844
C.(Continua	ation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 96/34080 A (HENKEL KGAA ;MAURER KARL HEINZ (DE); WEISS ALBRECHT (DE)) 31 October 1996 (1996-10-31) cited in the application page 13; claims	2-27
X	DATABASE WPI Section Ch, Week 200057 Derwent Publications Ltd., London, GB; Class D16, AN 2000-596504 XP002276688 & JP 2000 210081 A (KAO CORP), 2 August 2000 (2000-08-02) abstract	2,22-27
A	EP 0 544 944 A (PROCTER & GAMBLE) 9 June 1993 (1993-06-09) page 4, line 36 - line 37	1-27

Form PCT/ISA/210 (continuation of second sheet) (January 2004)



INTERNATIONAL SEARCH REPORT

International Application No PCT/DK 03/00844

			
Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 02099091 A	12-12-2002	WO 02099091 A2 EP 1399543 A2	12-12-2002 24-03-2004
EP 1350843 A	08-10-2003	JP 2004000140 A CN 1458274 A EP 1350843 A2 US 2004002431 A1	08-01-2004 26-11-2003 08-10-2003 01-01-2004
EP 0921188 A	09-06-1999	CA 2244970 A1 EP 0921188 A2 JP 11221086 A US 6294366 B1 ZA 9808586 A	19-03-1999 09-06-1999 17-08-1999 25-09-2001 22-03-2000
WO 9634080 A	31-10-1996	DE 19515072 A1 AT 181355 T AU 718993 B2 AU 5689596 A CA 2218953 A1 CN 1185803 A DE 59602253 D1 DK 822973 T3 WO 9634080 A1 EP 0822973 A1 ES 2135229 T3 JP 11504059 T NZ 307524 A US 5904736 A	31-10-1996 15-07-1999 04-05-2000 18-11-1996 31-10-1996 24-06-1998 22-07-1999 17-01-2000 31-10-1996 11-02-1998 16-10-1999 06-04-1999 29-07-1999 18-05-1999
JP 2000210081 A	02-08-2000	NONE	
EP 0544944 /	09-06-1993	EP 0544944 A1 AT 190644 T AU 3234193 A BR 9206856 A CA 2124790 A1 CN 1075507 A ,B CZ 9401232 A3 DE 69230801 D1 DE 69230801 T2 EG 20160 A EP 0615540 A1 ES 2142859 T3 FI 942551 A HU 67495 A2 JP 3357053 B2 JP 7501575 T MX 9206959 A1 NO 942053 A SK 63994 A3 TR 27153 A WO 9311216 A1 US 5591705 A	09-06-1993 15-04-2000 28-06-1993 02-05-1995 10-06-1993 25-08-1995 20-04-2000 02-11-2000 31-08-1997 21-09-1994 01-05-2000 31-05-1994 28-04-1995 16-12-2002 16-02-1995 30-06-1993 02-06-1994 09-11-1994 10-06-1993 07-01-1997
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